

CLAIMS

What is claimed is:

1. A method for forming a porous insulating layer, comprising:
the solution-applying step of applying a solution in which an insulating material is dissolved, onto a workpiece;
the solidified layer-forming step of forming a solidified layer by cooling the solution applied onto the workpiece to a temperature less than or equal to the melting point of a solvent contained in the solution;
the drying step of removing the solvent contained in the solidified layer to make the solidified layer porous; and
the firing step of hardening the porous layer obtained by the drying step.
2. The method for forming a porous insulating layer according to Claim 1, wherein, in the solution-applying step, the solution is applied so as to cover unevenness of the surface of the workpiece to flatten the surface of the applied layer.
3. The method for forming a porous insulating layer according to Claim 1, wherein the drying step is performed under a reduced pressure.
4. The method for forming a porous insulating layer according to Claim 2, wherein the drying step is performed under a reduced pressure.

5. The method for forming a porous insulating layer according to Claim 1, wherein the solidified layer-forming step is performed after part of the solvent is removed from the solution applied onto the workpiece.

6. The method for forming a porous insulating layer according to Claim 1, wherein the firing step is followed by airtight treatment for eliminating the air permeability of the hardened porous solidified layer.

7. The method for forming a porous insulating layer according to Claim 1, wherein the solidified layer-forming step is performed by rapidly cooling the solution.

8. The method for forming a porous insulating layer according to Claim 1, wherein the application of the solution to the workpiece is performed by silt coating.

9. A porous insulating layer-forming apparatus comprising:
a solution-applying portion for applying a solution in which an insulating material is dissolved, onto a workpiece;
a solidified layer-forming portion for cooling the solution applied onto the workpiece to a temperature less than or equal to the melting point of the solvent contained in the solution to form a solidified layer;

a vacuum drying portion for removing the solvent contained in the solidified layer by decompression to make the solidified layer porous; and
a firing portion for hardening the porous layer obtained in the vacuum drying portion.

10. A porous insulating layer-forming apparatus according to Claim 9, wherein the solidified layer-forming portion is provided in a decompression chamber of the vacuum drying portion.

11. An electronic device including a porous insulting layer formed by the method for forming a porous insulating layer according to Claim 1.

12. An electronic device including a porous insulating layer formed by use of the porous insulating layer-forming apparatus according to Claim 9.